



Tualatin Hills Park & Recreation District Waterhouse Trail Segment 4

Written Statement for City of Beaverton Design Review Compliance Letter and Type 2 Tree Plan Two

Prepared by

MacKay  Sposito

October 31, 2017

Waterhouse Trail Segment 4

Design Review Compliance Letter / Type 2 Tree Plan Two

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I. Proposal Summary Information

File No:

Applicant: Tualatin Hills Park & Recreation District
Tim Bonnin, Project Manger
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Applicant's Representative: Jim Sandlin
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Request: Design Review Compliance Letter (DCLR)
Type 2 Tree Plan Two

Location: 16598 NW Bethany Ct.
Beaverton, OR 97006

Assessor's Map: Map 1N131AD02400
Map 1N131AD02500
Map 1N131AD00102

Zoning Designation: OI – Office Industrial

Area to be Developed: 12,250 S.F.

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II. Project Team

Owner Representative

Tualatin Hills Park & Recreation District
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III. Project Introduction

A. Project Background

In November 2008, voters approved a \$100 million bond that will among other things, help preserve natural areas for fish and wildlife habitat, improve water quality and develop new trails and trail connections across the district. Following the bond approval, Tualatin Hills Park & Recreation District (District) hired MacKay Sposito, Inc. in 2010 to lead a group of consultants to Master Plan and Implement five infill trail segments along the existing Waterhouse Trail corridor. Waterhouse Trail is an approximately 5.5 – mile long off-street community trail that provides recreational and alternative transportation opportunities for bicyclists and pedestrians from the Merlo Road Light Rail Station to the Rock Creek Regional Trail. The trail will eventually extend past NW Springville Road into the proposed North Bethany community.

The five infill trail segments were identified as Segments 1, 4, 5, the West Union Road Crossing and the West Spur Segment and totaled approximately 2.12 miles in length. Segments 1 and 4 were designed and permitted under City of Beaverton's jurisdiction and the remainder of the segments were permitted under Washington County's jurisdiction.

All five trail segments were bid for construction in April, 2013. Once bids were received it was determined that there was a funding shortfall to complete all five, so, Segment 4 was shelved until which time funding became available. The remaining segments were successfully constructed and as-built drawings were submitted in August, 2014. Unfortunately, enough time passed while Segment 4 was shelved that the previously acquired permits expired.

In late 2016, the District acquired a grant to fund the final design and construction of Segment 4 and has once again hired MacKay Sposito to oversee a consultant team to provide the services needed. The consultant team is comprised of the same firms that provided the original services in 2010. The team and their roles consist of:

MacKay Sposito – Civil Engineering, Landscape Architecture, Survey, Permitting, Bidding and Construction Administration

Mason, Bruce & Girard (MB&G) – Environmental Applications and Permitting

Kramer Gehlen Associates (KGA)– Structural Engineering

ACC Cost Consultants, LLC – Cost Estimation

GRI – Geotechnical Engineering and Inspection

AMEC – No-rise Certification

Hood-McNees, Inc. – Electrical Engineering (grounding design)

Teragan & Associates, Inc. – Arboricultural Consultant

Western Wood Structures – Bridge and Boardwalk Design

District Staff has previously met with and received support from numerous stakeholders including Portland General Electric (PGE), Bonneville Power Administration (BPA), TriMet, Washington County and several landowners for right-of-way acquisition. In addition, as part of the master planning effort completed by MacKay Sposito, the proposed trail alignments received support of the public during an open house and by the District's Trail Advisory Committee. As a result, the District's Board of Directors unanimously adopted the Waterhouse Trail Master Plan on August 9, 2010.

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Proposed Standards and District Goals

The following are goals and standards that were incorporated into the adopted Trail Master Plan:

Goals

- Whenever possible, meet ADA guidelines.
- Avoid and minimize impacts to natural resources (i.e., wetlands, streams and significant trees).
- Provide direct and safe street crossings.
- Avoid impacts to existing utilities. Work cooperatively with utility representatives where trail interfaces with their land and facilities.
- Identify opportunities to provide connections to adjacent neighborhoods.
- Provide the most graceful alignment and profile possible.

Standards

- Asphalt Trails (10'-0" wide asphalt with 2'-0" wide gravel shoulders)
- Bridges (12'-0" clear widths)
- Boardwalks (12'-0" clear widths)
- District's standard trail signage

B. Recent Project Updates:

Since reviving this project, the consultant team has revisited and updated various aspects of the project. Among these efforts have been:

- Completed a new Pre-Application Conferences with the City of Beaverton and also with Clean Water Services. **(See Exhibit B – Pre-App Summary Notes)**
- MB&G conducted updated Environmental Fieldwork and Application Resubmittals.
 - MB&G has confirmed the previously delineated wetlands and waters, vegetated corridor conditions and buffer boundaries per CWS Design and Construction Standards. **(See Exhibit D – CWS Site Assessment)** It was discovered that the wetland boundaries have expanded slightly at the southern end of the alignment. This results in a need to add an approximate 30'-0" length of boardwalk to what was originally designed.
 - The updated fieldwork also resulted in an approximate 1,500 sq. ft. reduction in the vegetated corridor. As a result of the two factors above, the mitigation and restoration have changed somewhat from what was originally designed.
 - Received Wetland Delineation Concurrence from DSL. **(See Exhibit E – DSL Concurrence Letter)**
 - Received updated CWS Service Provider Letter. **(See Exhibit C – CWS Service Provider Letter)**
 - Submitted and awaiting approval of JPA.
- MacKay Sposito and Tergan & Associates, Inc. conducted an updated tree inventory and discovered there are two trees that previously were marked for removal that no longer exist on site. The arborist report and tree plan drawings have been subsequently updated. **(See Exhibit F – Arborist Report/Tree Survey)**
- Kramer Gehlen & Associates has reviewed the utility crossings by the switchback trail and retaining walls and indicated that the wall and path as designed will bridge the utility as it exists and will also accommodate a future upsizing of the sanitary sewer line by boring or pipe bursting methods without degradation to either the sewer line or the wall and path. Based on their assessment, the diameter of the pipe can be increased from a 21" dia. up to a 48" dia. without conflict with the proposed switchback trail. **(See Exhibit K – Sanitary Pipe Upsizing Letter)**

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- The Boardwalk and Bridges for this project will be Owner Provider / Contractor Installed similar to the previous completed trail sections. As such, THPRD has contracted directly with Western Wood Structures to update the bridge and boardwalk drawings and structural calculations which are included in this submittal for review. **(See Exhibit A – DCRL and Tree Plan 2 Plan Set and Exhibit L – Structural Calculations)**
- Although not required per the Pre-Application Conference, THPRD has conducted a recent Neighborhood Meeting to update the surrounding community. **(See Exhibit M – Neighborhood Meeting Info.)**

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IV. Trail Segment Location and Project Description

A. Location

Segment 4 is a gap that extends from the trail located at the northeast end of the soccer field located in Waterhouse Powerline Park and extends northward across Willow Creek and ends at the NW Bethany Court cul-de-sac. The trail segment is approximately 950 feet long. **(See Cover Sheet CS0.00)**

B. Project Description:

The proposed trail alignment will generally follow the existing trail alignment from the trail intersection located at the northeast corner of the soccer fields north along the existing boardwalk alignment until it crosses Willow Creek. **(See Existing Conditions & Demolition Plans Sheets C1.01 and C1.02)**. The intent is to utilize the existing alignment to the extent possible to minimize disturbance within the environmentally sensitive areas. Once it crosses Willow Creek with a 30-foot long bridge, the boardwalk continues north across the wetlands and transitions back to an asphalt trail.

Trail: The existing asphalt trail is approximately 7-feet wide and the existing boardwalk is 6-feet wide. The proposed trail will be a combined width of 14-feet wide consisting of a 10-foot wide asphalt paved section with (2) 2-foot wide crushed rock shoulders.

Boardwalk: The proposed boardwalk structures will be 12-foot clear width supported with 6"x6" posts and bracing or floor beams installed on Diamond Pier pin foundations, condition varies. Once the trail crosses Willow Creek the *existing* boardwalk takes a turn to the east, but the *proposed* boardwalk will extend to the northwest across the wetlands where it will connect to a proposed switchback trail. Decking and railings for the boardwalk will be constructed with American Plastic Lumber (Recycled Plastic Lumber).

Bridge: The proposed bridge structure will be 12-foot clear width with a 30'-0" long span across Willow Creek. It will be supported by concrete bridge abutments at each end. Decking and railings for the bridge will be constructed with American Plastic Lumber (Recycled Plastic Lumber).

Switchback Trail Section and Retaining Walls: The switchback is designed to minimize the disturbance within the wetland areas, while serving to provide access up the existing steep slope (approximately 35% grade) and connect to the existing pedestrian walk that currently dead ends at the top of the slope. The switchback will require the use of retaining walls and is aligned to avoid conflicts with existing sanitary sewer lines and manholes and also storm drain inlets to the extent possible. There is an existing 12" storm line which is in conflict with the switchback and retaining walls. The design resolves this conflict by removing and replacing the line within an 18" dia. x 20'-0" long sleeve that passes through the retaining walls. Additionally, there is an approximate 45'-0" long section of existing 21" Sanitary Sewer Pipe that passes beneath the switchback and retaining walls. The top of the sewer line is approximately 2.75' below the retaining wall footing. It has been confirmed by CWS that the sewer line is under the City's jurisdiction. We understand that the existing sewer line may need to be upsized in the future. Our Structural Engineer has confirmed that with the current design of the retaining wall it will remain structurally sound in the event that the sewer line is upsized in the future. They have also confirmed that the proposed retaining wall over the existing sanitary sewer line will not cause any structural damage to the pipe. As such we are requesting confirmation from the City that our proposed

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approach is acceptable. ***(See Sheet S1.01 for Profiles and Sheet S1.02 for Plans depicting the utility conflicts and resolutions)***

Beyond the switchback, the trail will follow the same horizontal alignment of the existing 11-foot wide asphalt path until it reaches the existing 6-foot wide concrete sidewalk located at Bethany Court. The existing asphalt path will remain and be overlaid.

Although there are no on-street improvements planned as part of the segment 4 construction, there are plans to provide trail signage at Bethany Court identifying the route to the north across HWY 26.

There will be disturbance to both the Vegetated Corridor and the Wetland which will require mitigation. The extent of disturbance and mitigation is being reviewed by DSL/ACOE and Clean Water Services.

Structures:

The only proposed structures along this alignment are retaining walls with guardrail fencing on top, boardwalks and a bridge.

Bridge and Boardwalks

The District will contract directly with Western Wood Structures to design and fabricate the bridge and boardwalks as was done for the previously constructed trail segments. The goal in designing the boardwalks is to not exceed a vertical height of 30 inches between the existing **ground and the proposed decking.** ***However, as depicted on the plans there are several*** stretches which do require handrails.

Bridge Abutments

The existing bridge abutments will be removed and replaced with new concrete abutments to accommodate the new wider bridge. The abutments have been structurally designed by KGA. ***(See Sheet S2.02 for details.)***

Retaining Walls

The retaining walls will be constructed cast-in-place concrete with chamfered edges and joints to provide architectural relief. There will be a 4'-0" tall vinyl coated chain link fence constructed on top of the retaining wall to serve as a guardrail. The fence will be grounded. ***(See Sheet S2.04 and S2.05 for details)***

Signage:

The trail will be signed appropriately for safety, regulatory and wayfinding purposes using the standards from the THPRD Sign Master Planning document ***(See Sheets C3.02 and C3.03 for details)***. In addition, THPRD will provide and install an interpretive/educational sign which describes the public benefits served by the vegetated corridor and wetlands that the trail crosses. The exact sign design and location is yet to be determined.

Landscaping:

The majority of the proposed planting improvements will consist of restoration of vegetated corridor, mitigation for tree removal and erosion control seeding. Trees to be planted are shown on Site Plans. ***(See Sheet C2.01 and C2.02)***

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Parking:

There are no parking improvements included in this project.

Lighting:

The District's policy is to NOT light its trails and parks. They typically only light areas where the trails connect or cross into public right-of-ways such as public sidewalks and streets. There are no street crossings associated with this trial project. However, where the trail meets the public sidewalk at NW Bethany Court, there is an existing cobra head street light adjacent to the trail. (***See photo below***) Although we have not conducted any light level studies for this specific light, we are assuming that it meets the City's lighting standards and thereby, also meets the lighting requirement for this project. Therefore, there are no proposed lights associated with this development.



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V. Conformance with City of Beaverton Development Code

The following is a written response to the applicable regulations associated with the development of the Waterhouse Trail Segment 4, as identified by the City of Beaverton in the Pre-Application Conference Summary. This written response, in combination with the associated drawings and exhibits submitted with the Design Review Compliance Letter Submittal Checklist and the Tree Plan Two Submittal Checklist are submitted as evidence of compliance with the applicable regulations. The following written narrative is supported by the drawings and exhibits included with this submittal.

The following are responses to the special requirement applicable to our development as identified in the Pre-Application Conference Meeting Summary Notes:

APPLICATION FEES

Enclosed is a check for \$1,178.00 to cover the cost of the Design Review Compliance Letter (\$116.00) and the Tree Plan 2 (\$1,062.00) as was identified in the Pre-Application Conference Summary Notes.

SECTION 50.15 (CLASSIFICATION OF APPLICATIONS)

Section 50.15.2 provides for consolidated processing of applications. Segment 4 is subject to a Type 1 Design Review Compliance Letter (DRCL) and a Tree Plan 2. Based on Section 50.15.2, when more than one application is completed for a given proposal, as is the case for this proposal, both applications are subject to the procedure type which requires the broadest notice and opportunity to participate. Based on the proposal including an application for Tree Plan 2, the consolidated proposal is subject to a Type 2 procedure.

SECTION 50.30 (NEIGHBORHOOD REVIEW MEETING):

Per the Pre-Application Conference, this project is not required to conduct a Neighborhood Review Meeting. However, THPRD conducted a Neighborhood Meeting as a courtesy update to the neighborhood anyway. (See Exhibit M – Neighborhood Meeting Info.)

CHAPTER 20 (LAND USES):

Segment 4 is Zoned Urban Standard Density R-7 and Office Industrial. Per the Key Issues/Considerations received from the City of Beaverton, since the proposed development is no more than a trail, the use is not consistent with the description for public parks, parkways and/or playground, and therefore does not warrant Conditional Use review.

CHAPTER 40 (PERMITS & APPLICATIONS):

This proposal is subject to the following two application types:

1. **Design Review Compliance Letter (DRCL) Type 1.**

Based on Code Section 40.20.15.1, the proposal meets Threshold No.1 of DRCL (items “l” Changing of existing grade and “h” Addition of new retaining walls). In this case, none of the other items “a through g” or “j through l” apply. One design standard in Section 60.05.25.10.A establishes maximum slope differentials (from residential) for grading improvements. However, subsection “C” exempts public right-of-way road improvements such as new streets, street widening, sidewalks and similar or related improvements. Staff indicated in the pre-application summary notes that they determined

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this trail project to be a similar or related improvement under "C" and is therefore exempt.

2. **Tree Plan 2 Type 2**

Based on Code Section 40.90.15.2, the proposal meets Threshold No.3 wherein, removal of up to 75% of the total DBH of non-exempt surveyed tree(s) found on the project site within SNRA's or Sensitive Areas as defined by Clean Water Services.

Pursuant to section 50.25.1.B of the development code, the following are written responses addressing the Type 2 Tree Plan Two – Approval Criteria as specified in 40.90.15.2.C.1-13 of the Development Code and included in the Tree Plan 2 Application:

1. The proposal satisfies the threshold requirements for a Tree Plan Two application.

The proposal satisfies the threshold requirement since none of the actions listed in 40.90.10 apply, none of the actions listed in 40.90.15.1 apply and threshold A.3 does apply wherein - Commercial, Residential, or Industrial Zoning District: Removal of up to and including 75% of the total DBH of non-exempt surveyed tree(s) within a SNRA or Significant Grove area that is found on the project site.

2. All City application fees related to the application under consideration by the decision making authority have been submitted.

All applicable fees have been submitted with this application.

3. If applicable, removal of any tree is necessary to observe good forestry practices according to recognized American National Standards Institute (ANSI) A300-1995 standards and International Society of Arborists (ISA) standards on the subject.

Please refer to the Certified Arborist Report prepared by Teragan & Associates, Inc., dated 9/14/17 for a detailed description of the proposed pruning and tree protection practices. The Technical Specifications generated for the project will reference the standard good forestry practices.

4. If applicable, removal of any tree is necessary to accommodate physical development where no reasonable alternative exists.

A thorough inventory and analysis was completed which led to the trail alignment shown on the drawings. The alignment was chosen to create the least amount of disturbance to the significant natural resources and utilized areas that were previously disturbed when possible. Please refer to the drawings for the proposed trail alignment and limits of grading and disturbance. Please refer to the Certified Arborist Report prepared by Teragan & Associates, Inc., dated 9/14/17 for a detailed description of the proposed tree protection practices.

5. If applicable, removal of any tree is necessary because it has become a nuisance by virtue of damage to property or improvements, either public or private, on the subject site or adjacent sites.

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There will be the removal of a non-native Hawthorn tree that is considered to be invasive. Please refer to the Certified Arborist Report prepared by Teragan & Associates, Inc., dated 9/14/17 for a complete description of the trees being removed.

6. If applicable, removal is necessary to accomplish public purposes, such as installation of public utilities, street widening, and similar needs, where no reasonable alternative exists without significantly increasing public costs or reducing safety.

The removal will be necessary to accomplish the construction of a regional trail, and the associated grading. No additional public facilities are proposed as part of this project.

7. If applicable, removal of any tree is necessary to enhance the health of the tree, grove, SNRA, or adjacent trees to eliminate conflicts with structures or vehicles.

The trees being removed are for the purpose of eliminating conflicts with the adjacent paved trail, and elevated boardwalk and bridge structures.

8. If applicable, removal of any tree(s) within a SNRA or Significant Grove will not result in a reversal of the original determination that the SNRA or Significant Grove is significant based on criteria used in making the original significance determination.

The removal of the trees within the SNRA will not reverse the original determination of this SNRA. Please refer to the Significant Natural Resources Assessment Report – Waterhouse Trail Project for the City of Beaverton and Unincorporated Washington County dated August 2, 2017 for specific information regarding the SNRA.

9. If applicable, removal of a tree(s) within a SNRA or Significant Grove will not result in the remaining trees posing a safety hazard due to the effects of wind throw.

Proposed removal of the trees will not result in safety hazard. Please refer to the Certified Arborist Report prepared by Teragan & Associates, Inc., dated 9/14/17 for a complete description of the trees being removed and reasons for removal.

10. The proposal is consistent with all applicable provisions of Section 60.60 Trees and Vegetation and Section 60.67 Significant Natural Resources.

Please refer to the Significant Natural Resources Assessment Report – Waterhouse Trail Project for the City of Beaverton and Unincorporated Washington County dated August 2, 2017 for specific information regarding the SNRA. The proposed trail improvements are believed to be consistent with all applicable provisions of both Section 60.60 and 60.67. Please refer to the narrative response for those specific code sections addressed previously in this document.

11. Grading and contouring of the site is designed to accommodate the proposed use and to mitigate adverse effects on neighboring properties, public right-of-way, surface drainage, water storage facilities, and the public storm drainage system.

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The grading is designed to accommodate the proposed trail with the least possible adverse effects to the sensitive areas. Based on the No-rise evaluation there will be no adverse effects to neighboring properties, public right-of-ways, surface drainage, water storage facilities or public storm drainage system.

12. The proposal contains all applicable application submittal requirement as specified in Section 50.25.1 of the Development Code.

To the best of our knowledge at the time of submittal, the proposal contains all submittal requirements.

13. Applications and documents related to the request which will require further City approval, shall be submitted to the City in proper sequence.

Any additional documents and/or applications required by the City will be submitted in the proper sequence. There is currently a JPA application under review that will be submitted once it is approved.

CHAPTER 60 (SPECIAL REGULATIONS):

Responses to the applicable special requirements are addressed below and in the drawings and exhibits included with this DRCL and Tree Plan 2 Submitted.

Section 60.05 (Design Review Principles Standards and Guidelines)

60.05.10. Design Principle

1. Building Design and Orientation

No buildings are proposed for this project. (n/a)

2. Multiple Use District Building Orientation and Design.

No buildings are proposed for this project. (n/a)

3. Circulation and Parking Design

The shared-use trail provides a safe and convenient means to connect surrounding neighborhoods and supports alternative means of transportation to the automobile. There are no parking improvements included in this project.

4. Landscape, Open Space, and Natural Areas Design

Disturbance occurring from construction of the trail will be restored to blend back in with the original surroundings. Invasive and noxious species of plants will be removed when encountered and a sustainable landscape planting design will be implemented using native plants where appropriate. There is a large thicket of Blackberry that exists on the majority of the steep slope at the north end of the proposed alignment. The Blackberry will be removed within the trail

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corridor and grading limits and will be replanted to ensure slope stabilization and to blend with the surrounding significant natural resources.

In addition to designing to minimize impacts, any natural features including but not limited to wetlands or significant natural resources will be restored, mitigated for or enhanced. A Certified Arborist Report has been completed for the project. Trees to be removed will be mitigated as required. Please refer to the Tree Plan drawings, the certified Arborist Report and the responses to Section 60.60 of the COB Development Code provided below.

Additional requirements for mitigation will be identified during the Joint Permit Application process which is currently under review and also as set forth in the Service Provider Letter provided by Clean Water Services.

5. Lighting Design.

The District's policy is to NOT light its trails and parks. There are also no street crossings to warrant lighting related to this proposal. There is an existing light at NW Bethany Ct, adjacent to the north end of the trail. The street light is lighting the existing sidewalk where the trail begins. We assume that the light levels are adequate in this location based on the proximity of the trail to the existing sidewalk. Therefore, there are no lights included in this project.

60.05.15. Building Design and Orientation Standards.

There are no buildings included in this project. (n/a) The only architectural features consist of boardwalks, a bridge and retaining walls.

The boardwalks will be built using 6"x6" posts mounted on Diamond Pier foundations to minimize impacts to sensitive areas. The framing will consist of wooden construction and the decking and railing will be constructed of plastic lumber. Where deck elevations are over 30" from the adjacent finished grade of the ground below, guardrails will be incorporated in the design. Otherwise a curb rail will be utilized. Refer to the drawings prepared by Western Wood Structures for more detailed description of dimensions and materials.

The retaining walls will be constructed cast-in-place concrete with chamfered edges and joints to provide architectural relief. There will be a 4'-0" tall vinyl coated chain link fence constructed on top of the retaining wall to serve as a guardrail.

60.05.20. Circulation and Parking Design Standards.

1. Connections to the public street system.

Although there are no on-street improvements planned as part of the Segment 4 construction, the north end of the shared-use path will end at the public sidewalk located at Bethany Court. There are plans to provide street signage indicating that Bethany Court is a bike route.

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2. Loading areas, solid waste facilities and similar improvements

No loading areas, solid waste facilities or similar improvements are proposed for this project.

3. Pedestrian circulation

Although there are no on-street improvements planned as part of the segment 4 construction, the north end of the shared-use path will end at the public sidewalk located at Bethany Court. There are plans to provide street signage indicating that Bethany Court is a bike route.

4. Street frontages and parking areas

No parking areas are being built as part of this project. (n/a)

5. Parking area landscaping

No parking areas are being built as part of this project. There is currently buffer planting associated with existing parking lots at the north end of the trail alignment. The planting is not anticipated to be removed.

6. Off-Street parking frontages in Multiple-Use Districts.

No parking areas are being built as part of this project. (n/a)

7. Sidewalks along streets and primary building elevations in Commercial and Multiple Use zones.

No modifications to the sidewalks are planned as part of this proposal.

8. Connect on-site buildings, parking, and other improvements with identifiable streets and drive aisles in Residential, Commercial, and Multiple-Use zones.

The proposed trail will not connect to buildings, parking or other improvements. (n/a)

9. Ground floor uses in parking structures

There are no parking structures located within this project. (n/a)

60.05.25. Landscape, Open Space, and Natural Areas Design Standards.

The shared-use trail follows an alignment that falls within a proposed PGE easement, or within THPRD property. Sections 60.05.25 (1) through (7) refer to landscaping within multi-family residential zones, common greens, shared courts, and are not applicable to this project.

8. Retaining Wall

There are some runs of the retaining walls that will exceed 50 lineal feet and will exceed 6 feet in height. The walls will be constructed cast-in-place concrete with chamfered edges and joints to

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provide architectural relief and interest. The wall is located within a natural resource area and will be buffered with native plantings.

9. Fences and Wall

There will be a 4'-0" tall vinyl coated chain link fence constructed on top of the retaining wall to serve as a guardrail. Walls are described in number 8 above.

10. Minimize significant changes to existing on-site surface contours at residential property lines.

Per the City's written comment in the KEY ISSUES/CONSIDERATIONS section of the Pre-Application Conference Meeting Summary Notes, per sub section "C" of this code section, public right-of-way road improvements such as streets, street widening, sidewalks and similar or related improvements are exempt. Staff has determined the trail project to be a similar or related improvement under "C".

11. Integrate water quality, quantity, or both facilities.

Storm water quality and quantity are both addressed in the Waterhouse Trail Segment 4 Hydrology Report. (See Exhibit G- Hydrology Report)

12. Natural Areas

*Any disturbance within significant natural resource areas will strictly adhere to the requirements mandated by the governing jurisdiction. The project has been designed to minimize encroachment into the natural areas to the greatest extent possible. However, this proposal will result in some encroachment. A description of the natural resources, the impact of this proposal and the requirements that will be met to mitigate for the impacts are discussed in detail in **Exhibit C - CWS Service Provider Letter** and **Exhibit D – CWS Site Assessment**. In addition, a JPA has been prepared and submitted to Army Corps of Engineers and Division of State Lands. Any subsequent requirements resulting from the approval of that permit process will be met as well.*

13. Landscape Buffering Requirements.

Per the Applicability of Buffer Standards the shared-use trail should be considered exempt based on its alignment through existing public utility easements, and in terms of safety, visual access should be maintained. The disturbed areas adjacent to the path will be restored with groundcover or lawn to match the remaining surroundings. When encountered invasive and noxious plants will be removed.

14. Community Gardens.

There are no community gardens located within this project. (n/a)

60.05.30. Lighting Design Standards.

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15. *The District's policy is to NOT light its trails and parks. Therefore, there are no lights included in this project.*

There is an existing street light at NW Bethany Ct, where the trail connects to the public right-of-way. This is an existing condition and connection point to the trail, and it is assumed that the existing light levels are in conformance with City Standards.

60.05.35 through 60.05.50

The remainder of the code Section 60.05 are guidelines that have already been addressed above and/or are not applicable to this proposal.

SECTION 60.10 (FLOODPLAIN REGULATIONS)

60.10.05. Purpose

In accordance with 60.10.05 we are preserving the conveyance capacity and providing for health safety and welfare. The proposal maintains the functions and values of the floodplain, does not inhibit conveyance, storage or stream flows through the existing natural flood conveyance system.

*A No-rise report has been completed for the project which concludes that the proposed project meets the requirements for a no-rise finding. **(See Exhibit I – No-Rise Report)***

60.10.10. Floodplain Designation

1. *Willow Creek is shown on the FIRM Map*
2. *A No-Rise Report has been completed for the proposed project which indicates no adverse effects will result from the proposal.*
3. *It is understood that a larger flood could occur.*
4. *No hazardous materials will be stored in the floodplain as a result of this proposal. No materials will be stored which will obstruct the flow of water or reduce the holding capacity of the site.*

60.10.15. Development in Floodway

Per Section 60.10.15.1.A and C, the bridge and trails (boardwalks) are acceptable developments in the regulatory floodway and a no-rise report was completed that indicates no adverse effects will result from the proposal.

60.10.20. Commercial and Industrial Uses in the Floodway Fringe

No commercial or Industrial Uses proposed. n/a

60.10.25. Residential Uses in the Floodway Fringe

No Residential Uses proposed. n/a

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60.10.30. Development of Critical Facilities within the Floodway Fringe.

No critical facilities are proposed within the Floodway Fringe. n/a

SECTION 60.60 (TREES AND VEGETATION)

60.60.07. Enforcement

A Type 2 Tree Plan Two and a certified arborist report have been prepared for this project which serve as a guide for the contractor to follow and which is for the purpose of ensuring the proper removal and protection of trees. Please refer to the Certified Arborist Report for Segment 4 and the associated Tree Inventory Spreadsheet prepared by Teragan & Associates, Inc., dated 9/14/17.

Most of the trees on the property are well away from where the trail is to be constructed and will not be impacted. As such, the only trees inventoried were those that do have potential to be impacted either directly by the construction of the trail or by the construction activities that will occur to construct the trail if care is not taken to limit the construction area. The numbers in the Tree Inventory chart correspond to the numbers located by the trees indicated on the site plans for the project.

60.60.10. Types of Trees and Vegetation Regulated

Trees identified to be removed for construction of the trail are considered to be either Trees within Significant Natural Resource Areas or Landscape Trees. They are a mix of Native and non-native trees which are identified on the tree plan and the certified arborist report. Please refer to the Certified Arborist Report and the associated Tree Inventory chart prepared by Teragan & Associates, Inc., dated 9/14/17.

60.60.15 Pruning, Removal, and Preservation Standard

1. Pruning Standard

If any pruning is required for the construction of this trail, it will be done under direction of a licensed arborist and in accordance with the City's adopted Tree Planting and Maintenance Policy.

2. Removal and Preservation Standards

- A. *No Protected Trees are being removed as part of this trail development.*
- B. *All Landscape Trees removed will be mitigated for as set forth in Section 60.60.25.*
- C. *Trees removed for the construction of the trail are within a Significant Natural Resource Area and therefore will be subject to mitigation review and standards as described in 60.60.25.2. However, as noted in the Pre-Application Conference Meeting Summary Notes, the project is not part of Significant Grove G-25 according to the City's Significant Tree Inventory.*

Waterhouse Trail Segment 4

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60.60.20 Tree Protection Standards during Development

Trees classified as protected trees shall be protected during development in compliance with the standards described in 60.60.20

60.60.25.2. Mitigation for the removal of trees from Significant Groves or SNRAs shall be required as follows:

- A. Calculate the total DBH of the trees to be removed. Denote both deciduous and coniferous trees in separate tables; however, both tables will result in the sum total of the DBH to be removed.
- B. If the total DBH of trees to be removed is less than or equal to 50% of the total DBH of surveyed trees on the site, then no mitigation is required for the trees to be removed.
- C. If the total DBH of trees to be removed is greater than 50% of the total DBH of surveyed trees on site, then mitigation is required for the amount of DBH to be removed that exceeds 50% of the total DBH of surveyed trees on site.

For example, if 75 inches is the total amount of DBH to be removed from a site and 60 inches of DBH represents 50% of the total surveyed DBH, then 15 inches of DBH is the total required amount of mitigation.

The proposed project will result in approximately 146.50 inches DBH of tree volume removed although only 51 inches DBH will actually be removed. Approximately 95.50 inches DBH of tree volume will have critical root zone impacts, even though these trees will not require removal they were included in the quantity for removal due to the Beaverton code language, "any tree whose root protection zone will be impacted is to be shown as a removal in this report and on the project's plans". See Table below for summary of tree impacts resulting from this project. We will be planting 18 inches DBH of on-site mitigation trees, see plans for species and locations. (See Sheets C2.01 and C2.02 for tree location and species)

Mitigation for Multiple Use Zones – Segment 4	
DBH of Surveyed Trees	229.50
DBH Proposed for Removal (MAXIMUM removal allowed is 75% Surveyed Tree DBH)	146.50
Mitigation Threshold (50% Surveyed Tree DBH)	114.75
DBH to be Mitigated (75% DBH Removal – 50% DBH Threshold=25% Surveyed DBH)	31.75
On Site Mitigation (50% of the DBH to be mitigated)	15.86

Waterhouse Trail Segment 4

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SECTION 60.67 (SIGNIFICANT NATURAL RESOURCES)

60.67.05. Local Wetland Inventory

A project study area was identified for trail segment 4 as well as the other proposed Waterhouse Trail segments, and a significant natural resources assessment report was completed for all of the project sites by Mason, Bruce & Girard, Inc. (See Exhibit D – CWS Site Assessment) An update wetland delineation was also prepared as part of the effort and issued to DSL for concurrence, which they provided. (See Exhibit E - DSL Concurrence Letter)

Segment 4 is located entirely within the PGE transmission line right-of-way within the Sunset West Community Plan of the City of Beaverton. The northern portion of the segment is located on private property and the southern portion is owned by THPRD. The topography within Segment 4 is slightly sloping, descending from NW Mission Oaks Drive to the north where it flattens within a wetland associated with Willow Creek. To see the wetland please refer to the Waterhouse Trail Segment 4 CWS Design & Construction Standards Standard Site Assessment, dated August 2, 2017. (See Exhibit D – CWS Site Assessment).

There is an existing boardwalk within the wetland and a bridge crossing Willow Creek. The proposed improvements include widening a portion of the existing boardwalk and the bridge, and extending the boardwalk to complete the trail connection to the north.

A Joint Permit Application process is currently being completed to address the impacts and associated mitigation requirements as prescribed by DSL and the Army Corps of Engineers. The CWS Site Assessment has also been provided to Clean Water Services as part of the process completed in order to obtain the Service Provider Letter. Please refer to the Service Provider Letter issued by Clean Water Services for additional information. (See Exhibit C – CWS Service Provider Letter)

60.67.10. Significant Riparian Corridors

A project study area was identified for trail segment 4 as well as the other proposed Waterhouse Trail segments, and a significant natural resources evaluation report was completed by Mason, Bruce & Girard, Inc. Please refer to the Waterhouse Trail Segment 4 CWS Design & Construction Standards Standard Site Assessment, dated August 2, 2017. (See Exhibit D – CWS Site Assessment).

Willow Creek is a FEMA regulated creek and is shown on the Flood Insurance Rate Maps (FIRM). For the final development permit submittal, we will provide a report that documents the base flood elevation and limits of inundation within the regulatory floodplain. A report will be provided that describes the engineering analysis performed to evaluate the project impacts on the base flood elevation.

A No-rise report has been completed for the project which concludes that the proposed project meets the requirements for a no-rise finding. (See Exhibit I – No-Rise Report)

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